HELP SCREEN

TIP OF THE MORNING TO YOU!

At first light they've already finished their simple breakfasts. Beneath the trees shadows hang thickly but the glades where the tips grow are bathed in a directionless light. The last of the mist is still on the ground as an ancient picker finds the first tip. He smiles, soon there'll be enough for a whole column.

All right, we're getting on with it. First the caveats. Although we can't pick tips for you on an individual basis we will try to acknowledge letters that arrive with an SAE. We also can't accept phone calls.

But we want your input. If you're a newcomer to the world of PCs then you may need a helping hand over the tough parts – feel free to ask. All questions welcome, the answers are usually relevant to many others.

The experts among you can use these pages to pass on a little learning. Perhaps even to show off a little. See your name in print and gain some fame all in exchange for a few lines of hard won wisdom. There are going to be tricks you've learned to use that make your life easier. Let others know the problems and the solutions – they're often solutions to other problems as well.

It doesn't matter whether you think they're important, your experiences could save someone else hours of frustration. Share the thrill of discovery with us – in all its gory detail, please, and be in with a chance at a total of £50 worth of real money I'm trying to give away every month.

Send those tips to Steve Patient, *Help Screen,* PC PLUS, 30 Monmouth St, Bath, BA1 2BW.

This symbol indicates a query or a tip from someone just starting out with the PC. Either someone for whom all computing is new or perhaps a reader moving up from a different machine. Either way it should be self explanatory.

This is the hackers' haunt. Nothing is too technical for this section. Some may find it more baffling than enlightening but it offers something to get your teeth into.

Just because you use your PC every day doesn't mean you're not ocassionally going to be baffled. This is the heading for tips on batch files, pop-ups and utilities.

Danger area! Some of these tips can lead to tears before bedtime. Handle them with extreme caution and remember, PC PLUS can't be held responsible for any data loss or other damage – you have been warned!

This indicates a letter concerning the *SuperDisk*. Advice on using the programs and new twists to old favourites. Special *Help Screen* listings are now also featured on the disk.

DOUBLE TROUBLE

Having upgraded from an Amstrad PCW to an Amstrad PC3286 PC fitted with both 1.2 Mbyte and 1.44 Mbyte floppy disk drives, I have a question. On the PCW the disks for the single-sided, low-density drive can be formatted in the double-sided, high-density drive without problems. Is this the case with the PC? Can I buy 360K disks and 720K disks and format them at higher densities? These disks would mainly be for backup purposes.
S T Payne
Great Missenden

No, but I'll expand on that. First, the 1.2 Mbyte 5.25-inch floppies. These look much the same as their lower-density cousins (except for a lack of hub rings) but are written to in a different way. In high-density mode the disk rotates faster and gets written to with a stronger magnetic field. The low-density drives then cannot write to it. This is easy enough to prove – just try reformatting a 1.2 Mbyte floppy at 360K. You get an error message telling you that the media is bad – it isn't, but the data already there is too thoroughly embedded to overwrite.

Formatting a 360K disk to 1.2 Mbyte usually results in a disk with a lot of errors reported – bad sectors abound. The media will not hold the stronger magnetic fields and greater data density reliably. Using such a disk is playing Russian roulette with your data.

The situation with 3.5-inch disks is less clear. Most 1.44 Mbyte drives require an

extra notch on the disk case before they will acknowledge the disk as 1.44 Mbyte media. The Amstrad machines do not look for this notch, so you can format a 720K disk to 1.44 Mbyte without problems. Most of the time quality 720K disks format and work perfectly well at 1.44 Mbytes (I've tried it myself) though disk manufacturers frown on the practice.

I would suggest that for completely non-critical material you can use them – but for peace of mind, pay the extra and get genuine 3.5-inch HD disks.

COLOUR BAR

I have a Fujitsu DL1100 colour printer and run *Windows 3*. I have a DL1100 driver but have now discovered that *Windows Paintbrush* will not print in colour on the Fujitsu. Microsoft tells me that the *Paintbrush* program will only use HP PaintJet or PostScript drivers for colour. My colour printer works perfectly well with *DesignCAD 3*.

I had understood that *Windows 3* was supposed to get rid of problems like this. It seems a rather poor start to me when a *Windows 3* program will not use a perfectly good *Windows 3* device driver.
John Bingly

At the *Windows 3* launch Microsoft's technical folk assured me that any device with a proper driver would be accessible to any *Windows 3* program. This is a very important point. Program authors are not supposed to have to worry about writing device drivers under *Windows*. Are we going

to find ourselves in a situation where some programs work with some devices and others don't?

I talked to Mark Thompson at Microsoft and he tells me that only the two printers mentioned support Device Independent Bitmaps (DIB). *Paintbrush* was not written by Microsoft but by Zsoft, who wrote it to take advantage of this hardware-specific feature. This is not in accordance with the *Windows* guidelines.

Microsoft's own programs work differently, says Mark Thompson, and programs designed to print in colour will work with any colour printer for which there is a device driver – and that iincludes the DL1100 colour Fujitsu printer.

AMSTRAD UPGRADE

About three years ago I bought an Amstrad PC1640 with a mono monitor. As there are now many more programs that use colour I would like to upgrade my monitor. However it seems my only option is to buy the Amstrad ECD, which is now sold separately. This seems expensive in comparison to the value of the machine. Is this my only technical option or would it be better to buy a new computer?
S F Wells
Chesterfield

The PC1640 has its power supply built in to the monitor rather than the system box, which complicates upgrades. Therefore another Amstrad monitor is the simplest technical option. On the plus side:
1/ An ECD monitor is much cheaper than a

HELP SCREEN

whole new system (probably a quarter of the cost).

On the minus side:

1/ At three years old your PC1640 is pretty much at the tail end of its useful life (statistically speaking – yours may go on for years yet).

2/ The ECD monitor is effectively an EGA monitor – a video standard now looking increasingly less attractive in comparison with VGA.

3/ The Amstrad ECD monitor won't be any use if you buy a different PC six months from now.

4/ Graphics programs are noticeably slower with colour systems than with mono systems, especially noticeable on an XT type machine.

Conclusion:

In my opinion, if you can possibly afford it, bite the bullet and upgrade to a faster VGA colour system.

STARTING OVER

I am a complete newcomer to PC computing. I have an IBM-compatible 10Mhz XT with a 360K floppy drive and a 20 Mbyte Seagate hard disk. Unfortunately, I have no disks or manuals as the system was secondhand.

When booted up, the screen shows Pheonix BIOS version 2.27 and IBM personal computer DOS version 3.1. I bought the MS-DOS primer book and was lent a word processor to see if I liked it, however I have had to write to you using *View* on an Acorn Electron due to various problems. The main one is that I have succeeded in wiping MS-DOS from my hard disk – my PC now just sits there looking smug. I have been told that I need a hard disk utilities disk to run a setup progam. Can you tell me:

1/ Do I need a hard disk utility?

2/ Should I take this opportunity to upgrade MS-DOS?

3/ Which hard disk utilities do I need to buy?

4/ Where can I get my head tested? Any help on any of the above questions would be appreciated.

M A Budd
Staines

I sympathise, beginnings can prove highly dispiriting. But rest assured that it's very difficult to cause any permanent damage to

CHARACTER BUILDING

Could you please tell me how I can create, display and print mathematical characters, such as the Greek letter lambda (λ), from within *GWBASIC* programs on an Amstrad PC2086? My old CP/M machine had a built-in routine which allowed me to redefine the pixels on any key. Combining this with the character download facility of my Epson Printer I used to be able to display and print any character.

Peter Holliday
Bethersdon
Ashford

Yes, sort of. It's quite simple on any machine that loads the character set into memory when it boots – like the PCW mentioned above. Unfortunately the IBM PC (and its clones like the 2086) have the default alphanumeric character set in ROM (Read Only Memory) so altering the way they appear in text modes isn't trivial. However, it's much easier in graphics mode.

In graphics mode only the first 128 characters are built in to ROM, the next 128 are at a location pointed to by Interrupt vector 1F (located at 0000:007C). On a CGA machine this value is set to 0000:0000 unless the GRAFTABL utility has been loaded, which initialises the table. If you look where this vector points you'll find a character definition table 128 by 8 bytes long containing the same characters as those found in the alphanumeric ROM table (I know it sounds daft). Once located you can alter these to your heart's content from *GWBASIC* or any other language.

As long as you load GRAFTABL and drive your display in graphics mode (using the SCREEN command) you can alter and display any characters above 7FH that you like. It sounds like the sort of thing someone must have written a utility to do, the kind that finds its way into the public domain. Unfortunately, I've only been able to locate EGA versions – does anyone know of a source for a nice CGA graphic character re-definition utility?

the hardware, so it's just a matter of sorting it all out.

The favourite option is to get someone else to do it. It will be fast (shouldn't take an hour) and will cost around £25 if you can find a suitable local computer retailer. What you don't need at this stage is any clever hard disk utilities.

If you insist on sorting things out yourself the answer depends on what you did to kill it and on whether you have any bootable floppy disks with the original PC-DOS and utilities. If not then I suggest buying a copy of generic MS-DOS first (mail order or from any computer retailer – about £60). This will give you manuals as well as master disks, all of which are useful. If you take this route then its best to simply install MS-DOS on the hard disk as per the instructions in the manual.

If you can boot up from an existing floppy you may find that you can log on to drive C, the hard disk. If this is so then there's not much wrong. First off, see if you have a copy of COMMAND.COM in the root directory, type:

```
DIR C:\COMMAND.COM
```

if it's gone AWOL, then copy it across from the boot floppy and try to reboot. Deleting COMMAND.COM is one of the commoner problems new users have with hard disks.

Perhaps you were playing with some other utility and deleted the hidden files IBMDOS.SYS and IBMBIO.SYS? In this case you can use the SYS utility to copy these files from a bootable floppy, but only if the root directory is empty – which means deleting everything from the hard disk first – you should back up anything you want to keep on to floppy disks and then type:

```
SYS A:\ C:\
```

If you've damaged the data on the first track of the hard disk with DEBUG (yet another perennial favourite) then the most reliable solution is to reformat the hard disk with the FORMAT utility. Repairing this kind of data damage is possible but requires an expert, lots of time – and consequently it usually proves expensive.

While hard disk recovery tools like *Norton Utilities* are useful in expert hands, they assume a fair degree of understanding of the underlying hardware and software

TWO INTO FOUR

Anyone with high-density floppy drives (I have both 1.2 Mbyte and 1.44 Mbyte drives) will be familiar with the problem of remembering the correct parameters required to format low-density disks.

However, I have discovered a way to make the job much easier – as well as offering some interesting new features. All you need is DRIVER.SYS and two lines in your CONFIG.SYS file.

```
DEVICE=DRIVER.SYS /D:0 /T:80 /S:9 /H:2 /F:2
DEVICE=DRIVER.SYS /D:1 /T:80 /S:15 /H:2 /F:1
```

Now I effectively have four floppy drives, A B D E. The first two are high-density and the last two low-density. Formatting a disk in D (a 3.5-inch drive) results in a 720K disk. Even more useful, it provides a way of COPYing or XCOPYing a disk in one go when you only have a single drive of the

correct size. If you give the command:

```
XCOPY A:*.* D: /S
```

the PC will prompt you for the correct disks instead of giving you an error message.

Gavin Holt
Kings Lynn

This is a good idea, and one which will apply to those having trouble formatting some second drives on many PCs. This technique could provide the answer. DRIVER.SYS takes less than 3K so it's only a small memory sacrifice. It really is useful for copying files.

Out of interest, the first new drive will always be at least D since MS-DOS already has drives 0 and 1 defined internally as A and B. C is the hard disk by default (and also drive 80) so the first floppy supported via DRIVER.SYS must be D even if you only have a single drive system – obvious really.

(whatever it may say on the box). Without this knowledge they are confusing and useless (with it they're merely confusing).

As to getting your head examined, a wife or girlfriend is the best bet. They will offer useful observations like 'You must be mad to spend so much time with that stupid thing'; and effective treatments, such as, 'Turn it off and take me out for a drink or I'm leaving you.'

GOING UP

I have been using a Victor XPCllc for some time but have now decided to upgrade to a 286-based PC. Could you recommend a cheap system? The graphics adaptor doesn't matter. I've also been considering building one myself – would this be cheaper? My budget is £600 to £800.
Nicholas Marchetti
Wirral

To take the last point first, it wouldn't be cheaper to build your own – manufacturers get low prices for components because they buy so many and need only make one profit on a PC. Component sellers buy less

in the first place, and must make a profit – to cover administration, postage and handling on every item. You could pay twice as much for an equivalent machine if you do it yourself.

As to the first question, PC PLUS only comments on the value of specific machines in reviews – and then only by comparsion with other reviewed machines. It simply isn't possible for us to cover the whole market.

At the moment you can buy an AT with a 28ms, 40 Mbyte hard disk, 12MHz or 16Mhz clock, 1 Mbyte of RAM and mono VGA from some PC PLUS advertisers for around £850 (£800 in a few cases) – which sounds extraordinary value to me. However, there are some things to watch out for.
1/ Look for a machine that takes nice standard SIMM memory to at least 4 Mbyte on the motherboard.
2/ Go for as many 16-bit slots as possible (some have mostly 8-bit slots).
3/ Go for a well-known BIOS, like AMI, Award or Pheonix (in an up to date version) that won't fall over with low-level compatibility problems when faced with *Windows* or the soon-to-be-released MS-DOS 5.0.

4/ If you're buying VGA on a very low-cost machine make sure the video adaptor card is current and can be upgraded to 512K – there are still a few less than fully compatible older boards floating around.

In short, make sure that it isn't cheap because it isn't right. As usual, buying from someone local that you feel you can trust, is the best bet for peace of mind.

IN CONTROL

One problem with *WordStar 1512* is the absence of enhanced printing support – for example, bold is actually double strike. To put in the Epson printer control code for bold, hold down the [Alt] key and press 27 on the numeric keypad, then press [E] (Control E is the code to set enhanced printing). Do this at the beginning of a document.
C P Mann
London

Good tip, it works in many other word processors and text editors as well. Use it to access any printer feature. To turn it off again use [Alt]27, [F]. Enhanced printing uses one pass rather than two.

HOT STUFF

The following routine uses ANSI.SYS to display the current time and date (in colour) whenever a particular 'hot key' is pressed. It uses the PROMPT command to do this and then returns the prompt to normal. You must have the line:

```
DEVICE=C:\ANSI.SYS
```

in your config.sys file (complete with the path if it isn't in the root directory).

The first task is to define the hot key in AUTOEXEC.BAT. I've used [Ctrl][Z], but it could be any key you want. Right, now to get the escape character into a text file without using fancy editing or DEBUG. Type the following:

```
CLS > HOTKEYZ.BAT
COPY AUTOEXEC.BAT+HOTKEYZ.BAT
```

This first line creates a file called HOTKEYZ.BAT containing one line and the second line adds the line in the file to the end of your AUTOEXEC.BAT file. It will look this: ^[[2J and is the ANSI command to clear the screen. ^[is a single character, Escape. Edit this line to read:

```
^[[26;27;"Hotkeyz";13p
```

which defines [Ctrl][Z] as the hot key. Now we need to generate the complete HOTKEYZ.BAT file. Type:

```
CLS >> HOTKEYZ.BAT
CLS >> HOTKEYZ.BAT
```

The HOTKEYZ.BAT file now contains the three required Escape characters:

```
^[[2J^[[2J^[[2J
```

Edit it to read as follows:

```
ECHO OFF
PROMPT $E[5A$E[K$_$E[K$E[0;1;36mDate: $E[33m$D$_$E[K$E$_$E[K$E[36mTime: $E[33m$T$_$_
ECHO ON
ECHO OFF
ECHO <ESC>[1A<ESC>[K<ESC>[1A
MYPROMPT
```

MYPROMPT is itself a batch file that contains your normal prompt, or alternatively, simply put your normal prompt there (the one in the AUTOEXEC.BAT). That's all there is to it. Reboot your machine so that the new AUTOEXEC.BAT takes effect and try out your new hot key.
Mike Millem
Sawtry

An impressive little batch file this, and a technique you can use to invoke any program or utility that takes your fancy – all without any TSR (Terminate and Stay Resident) programming. A well-deserved *BATCOM* winner (thanks again Ctrl-Alt-Deli).

For details of the daunting PROMPT in the batch file try the addenda to your MS-DOS manuals, the section about device drivers.

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DISKS DISKS DISKS DISKS DISKS DISKS
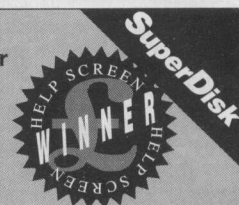
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RIGHT OR WRONG

One of the niggles in C programming, compared with the Pascal language, is the lack of a Boolean operator. However, there is a way of getting around this as follows:

```
typedef enum {false, true} boolean;
```

This declares a new type called `boolean` (which would be declared globally). Since it is an enumerated type it should only take false/true (or 0/1) values. Here's how it works:

```
demo()
{
boolean g_than;
int a,b;

printf("enter integers a and b");
scanf(!%d%d",&a,&b);
g_than=a>b;
printf("a is %s b\n",g_than?"greater than":"less than or equal to");
}
```

you can also assign values to the boolean type like so:

```
greater_than=false;
lesser_than=true;
```

The values of these boolean types will affect C constructs in the same way as Pascal constructs. If nothing else this technique will serve to clarify C program listings.

Damian Wilson
Selby

At least this is a nice tidy way to use the enum type, though if you prefer Pascal, but have to program in C, why not go further? Using `#define` you can make C look even more like Pascal, as below.

```
#include <stdio.h>

#define BEGIN {
#define END }
#define FUNCTION

FUNCTION main()
BEGIN
int count=10;
while(count)
    BEGIN
    printf("%d\n",count-);
    END
END
```

As the Pascal keywords are defined as the appropriate brackets, the C pre-processor simply changes them. Although this may look strange, it compiles without problems. Using C's macro substitution abilities to the full (along with some judicious program layout) I reckon a header file could be created that would allow most Pascal constructs to be converted automatically to C. Perhaps it seems a strange thing to do but such a header file could make Pascal programmers feel more at home when they have to use C.

GAME TRY

After spending some time slaving over a spreadsheet on my Swift 286, I would like to delve in to the world of programming. Sadly, I have the programming knowledge of a wet lettuce and can't decide on a suitable language to begin with. Many people have suggested *QuickBASIC*. However, a friend who uses an Atari 1040ST and programs in a games creator called *STOS* suggests the MS-DOS version of that – but I can't find it. Is he telling me porky pies?
Stuart Thurgood
Harlow

Make him eat those words. I talked to Mandarin (who wrote it) and *STOS* is not currently available for the PC. A good thing in my opinion. Games should be hand-crafted in lean, mean Assembler by insomniac monomanics. And anyway, they're silly – wouldn't you much rather write yet another formatted directory utility with file search options? Of course you would.

The *QuickBASIC* language easily wins for general-purpose programming. It produces the same results as most other languages and frequently does it with less programming effort.

Its graphic support is excellent as is the friendly progamming environment. For the price, it's unbeatable. Only pride (and the endless hours I put in getting to grips with the C language) prevents me from using it all the time.

TAKE CHARGE

I can find very little in the local library on the PC, and having recently upgraded from a BBC B to a Wyse PC286 I need a good general introduction to PCs. I'm also interested in a word processor – what would you suggest?
Bernard Jones
Paignton

Try *The Personal Computer Handbok* by Mike Hardaker (see the *Special Offers* pages) for an overview of the PC world. For more topic-specific information try Waterstones bookshops, they carry a large range of PC books. A classic getting started book is Van Wolverton's *Running MS-DOS* (Microsoft, £19.95, ISBN 1556151861).

As to word processors, everyone has their favourite. Generally, whatever you know how to use is the one you like. If it's any help I'll go through those I've tried.

My favourite is *Protext*, followed by *WordPerfect*, *WordStar*, *LocoScript PC* and the shareware *Galaxy*. Those I tried and disliked immediately include *PC Write*, *Multimate*, *Word* and *DisplayWrite*. I can live with *TopCopy* and the *Works* word processor, though both are light on features (as is *Galaxy*). My unbiased advice is to get *Protext*. (Steve, that's your full Protext quota for this issue – Ed)

PACK IT UP

PKZIP v1.1 is not very fast at imploding files so it's not worthwhile running an 'unzip, delete zip, run program, re-zip' strategy unless all the files are going to change. It's much faster to use the -u parameter
Richard Cole
Wimbourne

UNSATISFIED CUSTOMER

My computer is a Wang laptop which is not very PC compatible (all the Brown Bag software refuses to run properly, for example). With high hopes, I installed Clockwork Software's *Memory Map* expecting to get some answers. With amazement I looked at the addresses, segments, interrupts, and vectors and decided not to register – this information tells me nothing.

Your series *Absolute Beginners* was great stuff but I'm now looking for something a bit more advanced to help me to solve compatibility problems and do some programming. What do I need

BLOCKHEADER

Here is a *Wordstar* 5 macro which enables you to take an address from a letter off the screen and print it on a label or envelope. The address is made into a block using [Ctrl][K][B] and [Ctrl][K][K], a label is placed top left in the printer and the macro executed.

```
^QB.MT0^M.PO0^M.MB0^M.PL 1.5"^M^PB^KWAA^MY^Y^Y^Y^G^KPPAA^K^KH
```

The macro formats the block, writes it in boldface to a temporary file called AA, tidies up the original text and then prints the file AA.
Dr Fred Dische
London

Thanks for this. Little macros are surprisingly useful, but rekeying them leaves room for error. Anyone sending in macros should make sure that they're on disk in both native application format and as an ASCII file (I know that's awkward for *WordPerfect* users – but try). They must also include an explanation as to how they work. I'll try to get the best of them included on the *SuperDisk*.

HELP SCREEN

HELP SCREEN

to help me understand the *Memory Map* screen?
Wolfgang Otch
Vienna

To make sense of programs like *Memory MAP* you should have an understanding of both MS-DOS and the underlying hardware – it takes time and effort. However, you can program perfectly well with no knowledge of the underlying hardware or operating system – after all, you can learn to drive a car with no knowledge of the internal combustion engine. If it's PC compatibility you really need, then buy an IBM compatible PC. It makes no sense to try and alter commercial programs to fit the hardware – alter the hardware instead.

Good source books for seriously technical programming information are *The MS-DOS Encyclopeadia* (Microsoft ISBN 1556151749 £48.95) or *PC System Programming* (Abacus ISBN 1557550360)

DIRE DISKS
I'm in trouble – I have a whole book on about ten disks with a format quite unsuitable for my PC. They were written on an Olivetti 225 and DU100 disk unit. Is there any individual or company that can make the necessary conversion?
Derrick Pike
Glastonbury

My usual choice for disk conversion is Grey Matter, (0364 53499). Another company I've used in the past is AL Downloading (081-994 5471).

COPY CON
If you need to copy files from a floppy to a hard disk directory (or indeed the other way) change to the directory first. Then you need only type in the following command:

```
C:
CD\WPDOS
COPY A:*.*   (to directory)
COPY *.* A:  (to disk)
```

This avoids you having to type paths, handy if you're copying several different files.
John Woodcock
Bournemouth

DYING TO GO BACK
I've just bought a Genius 386SX and am running *4DOS* version 3.01. At unpredictable intervals I get a variety of error messages. Some examples are:

'Bad environment
<program name and path>.
'Failure on Int 24'.

'Division by zero error' – very common this one.
'Division error'. Also common.
Is this a hardware failure or hardware/software clash?
M G Dickson
Musselburgh

Oddly enough I've just been reviewing a 386-based machine with the same kind of problems – regardless of what operating system or programs I ran on it. The company concerned decided that it was a hardware problem, and I agree with them.

The first message is from *4DOS*, but it's only reporting what it can't find. The second message is a failure of the Critical Error Handler Interrupt, and things are bad if the software can't successfully report a serious error. Division by zero errors occurring in different programs are always a sign of trouble – most programmers are capable of avoiding that one. I'm told that one possible reason for these kind of problems is when the memory is too slow for the machine.

If you run robust programs that work on the majority of machines and yet they crash at random intervals on yours then something is bad inside – take no excuses – demand a replacement.

MOVING ON
After reading your review of the Amstrad Generation 3 machines I am considering buying either the PC3086 or the PC3286 (single drive versions). I would like to know if I can transfer my existing Western Digital Filecard 30, my Amstrad MC2400 card modem and my enhanced 101-key keyboard from my Amstrad PC1512 to the new machine?
John Britten
Leeds

As a general rule, it's not a good idea to transfer peripherals from an XT to an AT. Such peripherals are always 8-bit, usually slow enough to impact the performance of the better machine and sometimes, in the case of older cards, they won't run on the faster AT bus. However, the PC3086 is also an XT (like the PC1512) and no faster than the PC1512 you already have – it just has a better screen.

In both cases the modem card can go straight from one to the other. You can also transfer the filecard to the PC3086 without problems. However, you would have to tell the PC3286 that it is a type 0 (zero) hard disk. That way the PC3286 will use the on-card BIOS to run it. The keyboard is a no go, as the Generation 3 range use a different connector.

DRIVING FASTER
On my Amstrad 2386 I found that partitioning my hard disk into a number of smaller logical drives made it appear faster (in fact, it is faster). This works because each partition occupies a narrow range of tracks and the read/write heads needn't go so far.
Roger Walker
Colchester

DATED FACTS
For some time now I have been trying to find a method of making file names more meaningful. I would also like to be able to incorporate the date, mainly for word processing purposes.

The system I have now adopted may be of interest to others. It allows the day, the month and the year to be encoded in to the three characters of the filetype and it responds correctly to a sort by date (a sort by the file extension in this case).

The day, month and year are all encoded into alphanumeric values as per the tables below and then reversed to give the filetype. Thus a letter written to the bank on the 30-Jan-1991 would become NATWLET.11U while a set of club minutes for 14-Oct-1993 would become O35MINS.3AE and so on.

The only drawback to this system is the limit of 35 years. The idea is probably not unique but I have not seen it described anywhere else. I got the idea from an article on hex.
David Dickenson
Welwyn Garden City

THE MONTHS
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	A
11	B
12	C

WINNER HELP SCREEN

THE DAYS
1	1	13	D	25	P
2	2	14	E	26	Q
3	3	15	F	27	R
4	4	16	G	28	S
5	5	17	H	29	T
6	6	18	I	30	U
7	7	19	J	31	V
8	8	20	K		
9	9	21	L		
10	A	22	M		
11	B	23	N		
12	C	24	O		

THE YEARS
1990	0
1991	1
1992	2
and so on to:	
1999	9
2000	A
2001	B
and finally to:	
2025	Z

I like this idea (so I'm sending you a fiver), and can see how it could be a boon in the office. Even better would be long file names – fat chance , though you can have them right now in HPFS (High Performance Filing System) under OS/2.

As for the 35 year limit, if we're all still using MS-DOS by 2025 I shall cry (actually, I shall most probably be dead by then, and hence utterly unconcerned about this particular problem).

▶ 275

MAKING CONNECTIONS

I need some information for a school project. I plan to use the printer interface to send data to and from the PC with the device acting as though it were a printer. Can you tell me which pins on the 25 pin PC printer port connect to which pins on the 36 way Centronic printer port (on the printer)? How do I control the printer port?

Paul Richmond
Wimbourne

The diagrams on the right show the ports from the outside.

The normal way to control the printer port is via the BIOS Interrupt calls (the BIOS takes care of all the tricky stuff like strobe pulses and so on). As a printer doesn't send data back to the computer there is no provision in the Centronics interface to do so. For the same reason, the PC BIOS routines for the printer contain no provision for reads (unlike the asychronous serial ports which can be read as well as written to via the BIOS).

Although not supported by the BIOS most modern PC printer ports are bi-directional (and often used for data transfer), unfortunately, the port addresses and registers required to use them do not appear to be documented. Do any readers have information on this subject?

The following is a list of the pin connections:

IBM 25-PIN D TYPE PRINTER PORT

13 12 11 10 9 8 7 6 5 4 3 2 1
25 24 23 22 21 20 19 18 17 16 15 14

CENTRONICS PRINTER PORT

18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19

NUMBER	IBM	PRINTER	NUMBER	IBM	PRINTER (cont)
1	Strobe	Strobe	19	Ground	Ground
2	data0	data0	20	Ground	Ground
3	data1	data1	21	Ground	Ground
4	data2	data2	22	Ground	Ground
5	data3	data3	23	Ground	Ground
6	data4	data4	24	Ground	Ground
7	data5	data5	25	Ground	Ground
8	data6	data6	26		Ground
9	data7	data7	27		Ground
10	Ack	Ack	28		Ground
11	Busy	Busy	29		Ground
12	PE Paper	Empty	30		Ground
13	Select	Select	31		Initialise
14	Autofeed	Autofeed	32		Error
15	error	not connected	33		Ground
16	Initialise	ground	34		Not connected
17	Select in	Chassis	35		+5v
18	Ground	not connected	36		enable/disable codes

WISDOM OF SOLOMON

Some cold comfort from Dr Alan Solomon this month, along with confusing keyboards, dodgy diskettes and the promise of a free drink.

For this month's wonderful bargain, what about a 6lb notebook computer for £399? Morgans is making this offer with the Zenith Minisport PC, with serial, parallel and 2 Mbytes of memory. As usual there are some drawbacks, but if you know what you're doing it sounds very good. The downsides are – the diskette drive is 2-inch, (I haven't tracked down a source of these titchy disks yet), but Morgans throws in an external 3.5-inch 720 drive. The processor is only an 8Mhz 8088, and the screen is only CGA (but it is backlit). Sounds great for a carry-around PC, and I've just ordered one as a surprise for my wife's birthday (by the time you read this, she'll be using it).

BARGAIN BASEMENT

Need a new keyboard? How about a genuine IBM model for £10? The only problem is, it isn't an English one – it's French, German, Italian or Portuguese, which means the keytops have the wrong legends. A bit of Tippex, a run of Keyb UK, and you have a genuine IBM keyboard – or maybe you actually want a foreign one, in which case, here it is.

Contact Atul Majithia at Drakus for this,

and also for cheap (£10) copies of *WordStar*, *SuperCalc* and *Accounts Master*. The downside is that the *WordStar* is *WordStar 1512*, not the *WordStar* that you might have hoped for, and the *SuperCalc* is version 3.1, not the current 5.0. On the other hand, a word processor, a spreadsheet and an accounts package , and all for less than the registration cost of most shareware packages, can't be bad.

PARALLEL WORLDS

Last week I had to go to Minneapolis to visit Ontrack Computer Systems. Take my advice, don't go to Minneapolis in the winter. Although it's ten degrees south of London, it's thirty degrees colder. Nevertheless, I'm glad I went as it was very interesting. Ontrack does the same data recovery operation that we do in Europe, and the parallels to the ways that we go about getting back lost data were amazing.

The company uses the same Novell network, with the same 1.2 Gbyte Seagate drive on the server (although I'm inclining more towards the Fujitsu 1.2 Gbyte, because it looks technically more sound inside), the same Ethernet, and we even found that we

both used Western Digital cards. We only use them because of a job lot I got a while back – these days, we use Novell cards, which are very good at actually working, and really quite cheap, especially from Netland, which is currently doing them for about £120, including T junction and cable.

Even the company's clean environment looked the same as ours, and we have both taken the path of using reprogrammed diskette duplicators for sending people's data back on diskettes. Anyway, I've solved the shaver problem – the one whereby whatever connector you take to a country is the wrong one, and you have to use the emergency Gillette. I got a rechargable.

MEANWHILE

Back to the competition for the cheapest 486 – the current cup-holder is Atomstyle, who wants £1,082 for a motherboard, or £1,555 for a complete system, 1 Mbyte RAM, mono VDU, 1.2 Mbyte floppy and 40 Mbyte hard disk. I don't know how good they are – if anyone has one, please let me know.

If you go to the *Which Computer?* Show, carry your copy of PC PLUS and come to the IBM PC User Group stand. You'll get a free sit-down, and a fizzy drink, and you can tell me all your problems (well, the PC ones, anyway). And by the way, if anyone goes for any of the bargains that I mention, and has either a very good or very bad experience, please write and let me know.

See you at the show.

Morgans – 071-255 2115 or 636 1138
Drakus – 081-390 1299
Borland – (0734) 320022
Netland – (0638) 720999
Atomstyle – 081-801 1838

HELP SCREEN

KEEP OUT

If a SHELL is not specified in CONFIG.SYS then MS-DOS looks for COMMAND.COM in the root directory and invokes it with the /P switch. This tells COMMAND.COM that this is the first time it's been invoked and it must look for AUTOEXEC.BAT. If the SHELL command is present then the switch must be to. Alternatively, the SHELL command can invoke some other program or batch file instead. Like so:

```
SHELL=C:\COMMAND.COM /C MENU.BAT
```

This time, though, when the program quits so does COMMAND.COM – and the machine hangs. This is one way of setting up a system that users can't alter easily.

P S Davey
Plymouth

You were the only reader to pick up on this from my September 1990 DR-DOS 5.0 review – I hadn't appreciated the reason for the /P switch. It's also the reason why you can't EXIT from the first version of COMMAND.COM. The same trick works in batch files to automatically run a program and quit from that version of COMMAND.COM. The lines:

```
ECHO OFF
COMMAND /C ANOTHER.BAT
```

are the best way of calling other batch files from versions of MS-DOS prior to 3.3. It works in later versions as well.

SPEAK TO ME ONLY

I require some assistance with *GWBASIC* (I'm converting my programs from *Basic2*). I need to know if there is a command which redirects the screen output to the printer. What I want is the equivalent of the STREAM command in *Basic2*. I want to write routines once using the PRINT statement but have the output go to the printer instead if the user requires hardcopy.

John O'Dwyer
Athy
Co. Kildare

I admit that this one had me puzzled, but my son David – a *QuickBASIC* aficionado – supplied the following example code:

```
10 PRINT"Output to screen/printer (S/P) : "
20 A$=INPUT$(1)
30 IF A$="S" OR A$="s" THEN OPEN "SCRN:" FOR OUTPUT AS £1
40 IF A$="P" OR A$="p" THEN OPEN "LPT1:" FOR OUTPUT AS £1
50 FOR P=1 TO 10
60 PRINT £1,P,"Avez-vous un depliant sur La Rochelle?"
70 NEXT
80 CLOSE £1
```

GWBASIC will open any MS-DOS device as a file (which is how MS-DOS treats devices anyway). All files have handles, a 16-bit number that MS-DOS uses to identify them. There are five always available, numbered 0-4, as below:

0 Standard Input (keyboard) CON
1 Standard Output (Screen) CON
2 Standard error out (Screen) CON
3 Standard Auxilliary device AUX
4 Standard Printer (LPT or PRN) PRN

What's happening here is that *GWBASIC* has MS-DOS associate the file handle for screen (CON) with the printer (PRN) instead. All redirection in MS-DOS is done this way, by switching pointers around. You can do this directly using Interrupt 46H. One way to do the same in C is:

```
print_screen()
{
FILE *test;
char c;
printf("write to printer y /n? ");
scanf("%c",&c);
if(c=='y')
    test=fopen("PRN","w");
else
    test=fopen("CON","w");
while ((c=getch())!='q')
    {
    fprintf(test,"now it's %c\n",c);
    }
fclose(test);
}
```

Any other offers for instant file redirection inside programs?

The PC PLUS Fact Panel Guide

These days there's no such thing as a 'standard' PC – instead we've got a range of different disk sizes, graphics adaptors and hardware add-ons, such as mice, modems and memory boards. This makes the claim that a piece of software 'Runs on IBM Compatibles' a bit meaningless, so we're introducing a fact panel on all our reviews which shows exactly what hardware you need to run the program, and what optional equipment the program can make use of. The fact panel has four sections,

1. Display types.

This section shows the type(s) of screen display supported by the program. Remember that your PC's display type is determined by its combination of display adaptor and monitor, so for example a PC1640 will have a Hercules, CGA or EGA display depending on the MD, CD or ECD monitor in use.
The icons are as follows:

☐ 80x25 character text-only – runs on any IBM-compatible PC.
Ⓗ Displays Hercules monochrome graphics on Hercules-compatible machines.
Ⓒ Displays Colour Graphics Adaptor (CGA) quality graphics on CGA, EGA and VGA machines.
Ⓔ Displays Enhanced Graphics Adaptor (EGA) quality text/graphics on EGA and VGA machines.
Ⓥ Displays Video graphics Array (VGA) quality text/graphics on VGA machines only.
Ⓜ Displays Multi-Colour Graphics Array (MCGA) grapics on MCGA machines.
⒖ Displays PC1512 16-colour graphics on the PC1512 only.
Ⓨ Displays Tandy Graphics Adaptor graphics on Tandy compatible machines.
Ⓖ GEM Ⓦ *Windows*

Windows and GEM are both Graphical User Interfaces, which adjust automatically to make the best use of Ⓗ Ⓒ Ⓔ and Ⓥ displays. Other types may also be supported. You may need to buy Windows or GEM separately.

Programs with just a ☐ work on all IBM-compatible PCs, since all types of display adaptor support a standard text-only mode, which includes the 'IBM graphics character set' –

the boxes, lines and funny faces used by many programs. Monochrome systems may interpret colour text codes (or 'attributes') as flashing, underline etc.

Other icons refer to 'all points addressable' graphics displays, used in business graphics (e.g. *Lotus*-style spreadsheets), painting and drawing programs, desktop publishers, games and others.

A program may have more than one icon – for example, Ⓗ Ⓒ means that the software works with both Hercules and CGA adaptors.

2. Issue Disks

This tells you what type of floppy disk the software is supplied on.

⊡ 5.25", 360K floppy, or 1.2Mbyte if marked '1.2'.
▱ 3.5", 720K floppy, or 1.4 Mbyte if marked '1.4'. One icon means only available on that disk type (though check with your dealer)
▱ ⊡ both types supplied as standard
▱ or ⊡ 5.25 /3.5 choice – see price for details.

3. Minimum Hardware requirements

Items in this section are mandatory – either the program won't run at all without them, or would be unuseable in practice. The icons are:
▱ Single floppy
▱ Twin floppy
▱ Hard disk
▱ 80286 processor chip
▱ 80386 processor chip
▱ Mouse

▱ Joystick
▱ Matrix printer
▱ Laser printer (Note 1)
▱ Telephone line and modem
▱ Minimum free RAM, after MS-DOS and any resident programs are loaded.
▱ Expanded Memory Specification (EMS) card (see Note 2)
▱ Maths co-processor chip (e.g. 8087 for standard PCs, 80287 for ATs and so forth)

4. Other hardware supported

These items are not mandatory, but the program can make use of them. The icons are the same as those used in the minimum hardware section.

Notes: 1. Most laser printers will emulate Epson FX series matrix printers, so will work in basic mode with a matrix-only program. A laser driver indicates support for special fonts and high-resolution graphics. Always double check that your particular model of matrix or laser printer is supported.
2. There are various EMS standards around, the most popular being LIM EMS version 4.0. Check that your type is supported by the program.

OUR VALUE VERDICTS

Product fact boxes also contain verdict ratings, in the range 0 - 5, covering four areas of the product – Range of Features, Overall Speed, Ease of use and Documentation – plus an overall Value verdict..

These ratings are made in the context of the program's price and intended position in the market, so a £25 filer which provides good sorting facilities might get a Range of Features rating of 4, while a £600 bells-and-whistles database which couldn't import text data might be marked down to three. The overall value verdict is made on the same basis. It is quite possible for a very expensive product to be excellent value for money because it really does do the job well, while a very cheap product might be poor value because it is too lacking in features to do anything at all.